Renewable Energy Question #2: To date, what has been Michigan's cost of renewables, and how has that impacted rates paid by residential, commercial and industrial customers?

While the MPSC estimates that $1.79 billion has been *invested* in developing Michigan's renewable energy through 2012, this does not reflect Michigan's *cost* of renewables to date for several reasons.

First, while investments made to develop Michigan's renewable energy resources will, for the most part, be recovered from Michigan ratepayers, recovery is amortized over the life of the project – just as it is with any power plant. So Michigan's cost, to date, of renewables is only a small fraction of that initial investment and determining the exact fraction is difficult without access to data (transaction costs, etc.) that is typically kept confidential due to its business sensitivity.

Second, in determining the cost of Michigan's renewable energy and its impact on rates, it is important to recognize the avoided costs of Michigan's renewable energy – that is, what Michigan ratepayers would have otherwise spent on electricity had these renewable resources not been developed. This is primarily in the form of purchasing or generating electricity from non-renewable resources to replace the renewable energy not purchased, but also includes investments in non-renewable resources (such as necessary pollution controls) that are avoided because of the increased reliance on renewable energy. In Michigan's case, properly estimating this avoided cost is difficult, in part because Michigan is still in the early stages of compliance and many of these decisions have yet to be made.

Third, the price impacts of renewable energy on the regional electricity markets must also be taken into account. Lower market prices for electricity mean reduced costs for ratepayers. Because nearly all of Michigan's utilities purchase a portion of their electricity needs from the wholesale markets of the Midwest independent System Operator region (MISO), a true calculation of the cost of Michigan's renewable energy must take into account how increasing amounts of renewable energy in this market impacts the wholesale cost of electricity and how that impacts the costs ultimately paid by ratepayers. Initial studies to quantify the price suppression impacts of renewable energy on wholesale power markets indicate significant cost reductions for ratepayers. For example, a 2012 study by the Illinois Power Agency (and corroborated by similar findings in Massachusetts) found that for 2011, the integration of renewable resources into the power grid has lowered Illinois' average marginal price by $1.30 per MWh, resulting in savings of $176.85 million in total load payments.

Finally, when attempting to determine the cost of Michigan's renewable energy on ratepayers, the future avoided costs of Michigan's over-reliance on fossil fuels must also be considered, but is difficult to quantify. One of the critical benefits of renewable energy is its consistent price over the life of the generating facility. So if the costs of electricity from other resources rise due to increasing environmental costs or increasing fuel costs, renewable energy provides a larger cost benefit. In essence, renewable energy allows Michigan to hedge against the rising costs of electricity from other sources. While it is difficult to quantify this cost exactly, it is widely agreed upon that the cost of coal and natural gas will increase over the next several years.

Because of these factors, it would require extensive analysis involving significant uncertainty to calculate an exact number for the cost of Michigan's renewable energy and the impact it has on ratepayers.

Another way to estimate the cost of Michigan's renewable energy might be to look at the surcharges charged by Michigan utilities to comply with the renewable energy standard of P.A. 295. Under P.A. 295, utilities are allowed to charge a surcharge to their ratepayers to cover the incremental cost of compliance with Michigan's renewable energy standard. The monthly surcharges are limited at $3.00 for residential customers, $16.58 for commercial customers and $187.50 for industrial customers. If compliance with Michigan's renewable energy standard exceeds these statutorily-limited surcharges, a Michigan utility can get relief from its compliance obligations.

However, even utility surcharges do not directly correlate to the cost of Michigan's renewable energy. Surcharges are set based on utility plans approved by the MPSC that attempt to forecast the cost of complying with Michigan's renewable energy standard and do not necessarily reflect real-world experience. Further, there is some allowance of surcharge collection and banking for anticipated future costs, even if that year's cost of compliance would not warrant a surcharge. Therefore, a utility may be charging a surcharge despite the fact that complying with Michigan's renewable energy standard has not been more costly than otherwise and banking these funds for future compliance costs that may or may not materialize.

All this being said, there are several trends and specific data points that strongly indicate that the cost of Michigan's renewable energy and its impact on rates has been, and will continue to be, relatively small:

1. The MPSC calculates in its 2013 report that the weighted average price for RE contracts approved through 2012 is $82.54, which is less than what was forecasted in approved utility renewable energy plans. The MPSC further notes that renewable costs have been "much lower" than expected and continue to show a downward pricing trend.

2. Based on a review of utility renewable energy plans filed with the Commission, all electric providers except one – Detroit Public Lighting Department – are expected to meet the 10% renewable energy standard in 2015 without exceeding the statutory limits on monthly surcharges.

3. Of Michigan's 59 electric providers, 36 have not found it necessary to charge residential customers a monthly surcharge to recover incremental costs of compliance with Michigan's renewable energy standard.

4. Of the 23 electric providers that are charging a residential monthly surcharge, only 10 have shown it necessary to charge a surcharge in excess of $2 per month.

5. The most recent contracts approved by the MPSC for new wind capacity – which makes up the vast majority of Michigan's current renewable energy capacity – have a levelized cost in the $52/MWh range. This is nearly 20% lower than the MPSC's estimated weighted average of overall power supply costs of $64/MWh.

Resources:

1) Quackenbush, J.D., O.N. Isiogu, and G.R. White. 2013. *Report on the implementation of the P.A. 295 renewable energy standard and the cost-effectiveness of the energy standards*. Lansing, MI: Michigan Public Service Commission. Online at *http://www.michigan.gov/documents/mpsc/Report_on_the_implementation_of_Wind_energy_resource_zones_2013_413124_7.pdf*, accessed March 26, 2013.

2) Illinois Power Agency (IPA). 2012. *Annual report: The costs and benefits of renewable resource procurement in Illinois under the Illinois Power Agency and Illinois Public Utilities Acts*. Springfield, IL: IPA. Online at *www2.illinois.gov/ipa/Documents/April-2012-Renewables-Report-3-26-AAJ-Final.pdf*, accessed March 24, 2013.

3) Bolinger, M. 2013. *Revisiting the long-term hedge value of wind power in an era of low natural gas prices.* Lawrence Berkeley National Laboratory, U.S. Department of Energy. Washington D.C. Online at http://emp.lbl.gov/sites/all/files/lbnl-6103e.pdf; accessed April 22, 2013.